

**Listing of Claims**

1. (Previously Presented) A process of preparing an unsaturated fatty acid, which comprises introducing, into an organism being a yeast or plant, at least one isolated nucleic acid sequence encoding a polypeptide having Δ6-desaturase activity, selected from the group consisting of:
  - a) A nucleic acid sequence having the sequence shown in SEQ ID NO: 1,
  - b) nucleic acid sequences which, as a result of the degeneracy of the genetic code, are derived from the sequence shown in SEQ ID NO: 1, and
  - c) a derivative of the nucleic acid sequence shown in SEQ ID NO: 1 which encodes the polypeptide with the amino acid sequence shown in SEQ ID NO: 2 or a polypeptide having at least 95% homology at the amino acid level said polypeptide still having Δ6-desaturase catalytic activity, and culturing the organism to express said polypeptide.
- 2-5. (Canceled)
6. (Previously presented) The process as claimed in claim 1, wherein the organism is an oil crop.
7. (Canceled)
8. (Previously presented) The process as claimed in claim 1, wherein the unsaturated fatty acid is isolated from the organism.
9. (Previously presented) A transgenic organism selected from the group consisting of a plant and a yeast comprising at least one isolated nucleic acid sequence encoding a polypeptide with Δ6-desaturase activity, selected from the group consisting of:
  - a) a nucleic acid sequence having the sequence shown in SEQ ID NO: 1,
  - b) a nucleic acid sequence which, as a result of the degeneracy of the genetic code, is derived from the sequence shown in SEQ ID NO: 1, and

- c) a derivative of the nucleic acid sequence shown in SEQ ID NO: 1 which encodes the polypeptide with the amino acid sequence shown in SEQ ID NO: 2 or a polypeptide having at least 95% homology at the amino acid level said polypeptide still having Δ6-desaturase catalytic activity of the polypeptide.

10. (Previously presented) A transgenic organism as claimed in claim 9, wherein the organism is a plant.

11-12 (Canceled)

13. (Previously presented) An isolated nucleic acid comprising SEQ ID NO: 1.

14.-21. (Canceled)